

claimed in claim 37 ~~for 38~~, wherein the portion brought in contact with the electronic component is provided by an insulating resin that improves adhesion to a film material used on a surface of the electronic component, and the

5 portion brought in contact with the board is provided by an insulating resin that improves adhesion to a material used on a surface of the board.

40. An electronic component mounting method as claimed in ~~any one of~~ claims 25 ~~through 27 and 36~~, wherein

10 the insulating resin layer (6, 306b) has a portion brought in contact with either the electronic component or the board, the portion being mixed with no inorganic filler.

41. An electronic component unit, wherein an electrode (2) of an electronic component (1) is

15 electrically connected to an electrode (5) of a circuit board (4) with a bump (3, 103) formed on the electrode (2) of the electronic component (1) and bonded to the electrode (5) of the circuit board (4) in a state in which the bump is crushed with interposition of an insulating resin layer

20 (6, 306b), in which an insulating resin (306m) is mixed with an inorganic filler (6f) and hardened, and

the insulating resin layer (6, 306b) has a portion brought in contact with either the electronic component or the board, the portion having a smaller amount

25 of inorganic filler than that of the other portion.

42. An electronic component unit, wherein an electrode (2) of an electronic component (1) is electrically connected to an electrode (5) of a circuit board (4) with a bump (3, 103) formed on the electrode (2) of the electronic component (1) and bonded to the electrode (5) of the circuit board (4) in a state in which the bump is crushed with interposition of an insulating resin layer (6, 306b), in which an insulating resin (306m) is mixed with an inorganic filler (6f) and hardened, and

the insulating resin layer (6, 306b) comprises: a first resin layer (6x), which is positioned in a portion brought in contact with either the electronic component or the board and in which an insulating resin identical to the insulating resin is mixed with the inorganic filler; and a second resin layer (6y), which is in contact with the first resin layer and is made of an insulating resin whose amount of the inorganic filler is less than that of the first resin layer.

43. An electronic component mounting method as claimed in claim 5 ~~or 28~~, wherein heating is effected from the upper surface side of the electronic component or from the board side or from both the electronic component side and the board side when metallically bonding the gold bump to the electrode of the board with supersonic waves applied.

44. An electronic component unit, wherein the

electronic component is mounted on the board by the electronic component mounting method claimed in ~~any one of~~ 7 claims ~~[1 through 9, 14 through 17, 25 through 32, 36 through 40 and 43]~~.

- 5 45. An electronic component mounting apparatus as claimed in claim 11 ~~[or 34]~~, wherein the apparatus for metallically bonding the gold bump to the electrode of the board with supersonic waves applied comprises a heating member for effecting heating from the upper surface side of
- 10 the electronic component or from the board side or from both the electronic component side and the board side, and the heating is effected by the heating member at a time of metallic bonding.